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ABSTRACT

This paper reports on observations from teaching an undergraduate information-based organization (IBO) course and builds on past research to explain the findings in student issues, achievement motivation, and small-group effectiveness in information management teaching. The paper has three purposes: (1) to describe the development of a new course dealing with the integration of managerial and organizational behavior (OB) knowledge and information management (IM) knowledge; (2) to demonstrate the role and usefulness of groupwork in undergraduate teaching and its implications on motivation and learning; and (3) to discuss four stages of student motivation and intellectual development observed during the course. Two large sections of an undergraduate core course in information-based organizations (IBOs) were taught with a teaching approach based on small group interactions (i.e., using in-class experiential exercises) and involving self-directed learning. The course had two goals: to introduce the students to management and OB principles, and to help them understand the role of IM, as well as information technology's (IT) impact on organizational structure, culture, change, and development. Findings show that collaborative environments in the classroom induce much higher degrees of learning than environments based on the traditional teacher-dependent or lecture-based models. Furthermore, groupwork and role taking can both increase motivation and improve learning, enhance intellectual development and the confidence of the students, as well as increase the excitement and rejuvenation of the instructor. A chart outlines small group activities and their respective academic impacts, and a figure illustrates the stages of student intellectual development in the IBO course. (Contains 13 references.) (MAS)

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Integration of Information Management and Organizational Behavior: Lessons from Group-based Teaching Experiences

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Integration of Information Management and Organizational Behavior: Lessons from Group-based Teaching Experiences

ABSTRACT

I recently taught two large sections of a core undergraduate course in *Information-based Organizations (IBOs)*. The course had two goals: first, to introduce students to management and organizational behavior (OB) principles and second, to help them understand the role of *Information Management* (IM), as well as information technology's (IT) impact on organizational structure, culture, change and development.

The approach I used to teach the course was not the "traditional approach" adopted in similar introductory courses in management of information systems (i.e., usually involving instructor-directed learning and mostly lecture-based) but rather one based on small group interactions (i.e., using in-class experiential exercises) and involving more self-directed learning.

This paper reports my observations from teaching the IBO course and builds on past research to explain the findings in student learning issues, achievement motivation, and small-group effectiveness in information management teaching. Thus, the paper has three purposes: (a) to describe the development of a new course dealing with the integration of managerial and OB knowledge and IM knowledge; (b) to demonstrate the role and usefulness of groupwork in undergraduate teaching and its implications on motivation and learning; and (c) to discuss four stages of student motivation and intellectual development observed during the course.

Introduction: What's the *problem* with teaching introductory level Information Management courses?

Teaching introductory IS management to undergraduate and graduate students is one of the most challenging courses in any IS or management curriculum. Such courses usually cover a broad spectrum of IS topics ranging from very "hard" and technical ones (e.g., hardware specifications and "bits & bytes" coverage, description of memory devices, etc.) to very "soft" and managerial ones (e.g., what IS managers do, planning for IT, user involvement, strategic use of IT, etc.). Over the last eight years I have taught Information Management (IM) in a variety of course levels including undergraduate, graduate (full-time MBAs, M.Sc., and evening part-time professionals), and executive levels. Overall, students with more IS experience appreciate the introductory IM course much more than those with limited or no experience. In particular such students, even when the course is taught in the traditional "mostly lecture-based and note-taking" approach, find the case studies and journal articles very useful and thought provoking.

However, undergraduates tend to have very limited working experience and often find such courses of limited interest and not very useful in equipping them with enough specific skills to help them get a job in the IS field. Case studies seem very dry and of little meaning since they refer to real-life situations, thus foreign to most undergraduates, and journal articles seem "too abstract" to make it to the students' top-ten list of preferred readings for their semester classes. They usually rely on their more advanced or motivated classmates to disseminate their meaning during class discussion.

Previous research has distinguished between undergraduate and graduate education as similar to the distinction between the Greek words *pedagogy* (child education) and *andragogy* (adult education) (Knowles, 1970; Akin, 1991). In brief, pedagogy refers to instructor-directed methods of education where the student is in passive mode of note-taking and extrinsically motivated, while andragogy refers to self-directed learning where the student is intrinsically motivated and thus in active mode of involvement and capable of defining their own learning goals beyond the instructor's objectives (Knowles, 1970; Akin, 1991). Furthermore, other researchers have elaborated on the advantages of team-based or groupwork environments and how such environments contribute to (i) self-managed learning (Williams, 1982; Mallinger & Elden, 1987), and (ii) higher attainment and overall performance (Nicholls, 1979; Mallinger & Elden, 1987; Akin, 1991; Bowen et al., 1986; Hersey & Blanchard, 1993).

The Setting & Initial Conditions

The observations reported here involve the teaching of two large sections (between 45-55 students per section) of a course which is part of the core curriculum in the *Information Management & Technology* B.Sc. degree of a major private university. Most of the students were third-year (juniors) full-time undergraduates with little or no experience and the class met twice a week for 1.30-hour meetings over a 15-week semester.

The course was designed to cover principles from both the managerial perspective (mostly OB basics) and the IT management perspective (mostly the impact of IT on organizational structure, change and development, and the role of IT in the Networked organization). Having taught many different courses at the undergraduate and graduate level, I decided to experiment with this new course and introduce different techniques in order to avoid the usual "problems" with introductory IS courses as mentioned earlier. During the course I carefully observed and took notes on class behavior based on the various topics and teaching techniques I was using. In effect, I was trying to understand the differences between certain teaching techniques and "what really motivates undergraduates about information management (IM) learning"? Having developed different teaching techniques over the years, I decided to experiment with more self-directed and group-based approaches in teaching IM and see if such approaches would make any significant difference in the intellectual development and learning potential of the students.

The course started by emphasizing the values of observation, reasoning, perception, and prediction by allowing students to work in small groups and analyze each other's strengths and weaknesses and general behavior. In addition, students were given "warnings" during the first class that the course will involve a lot of reading, many activities in and out of the class, and a great deal of unstructuredness and anxiety during their assignments and experiential exercises. Groups were formed by the students under the instructor's guidance and "rule of maximum heterogeneity" (i.e., groups had to include students from diverse races, ages, work experience, gender and ethnicity and cultures). The explanation of that rule to students was that they can learn more from people that are different from them (cf., Bowen & Jackson, 1986; Bowser et al., 1993).

Earlier in the course students were also asked to observe and analyze their instructor's characteristics and behavior by participating in an awkward icebreaker exercise as adopted from Athos & Coffey (The Sherlock Holmes exercise; 1968). The purpose of that exercise early in the course was to force students to think about their observation, reasoning and prediction skills, as well as to experience the value of consensual validation and form trust between them and between them and the instructor. Overall, students seemed suspicious and uncomfortable with such powerful exercises since they were not sure about their instructor's goals and because it was still early for them to "open up" and disclose real feelings and perceptions about the authority figure in the class (the instructor). However, once they had completed the first set of experiential exercises and readings they seemed more relaxed, motivated and interested in future subjects related to both OB and IM, and much more participative and active in class work. A good way to describe the shift in students' attitude and motivation would be to parallel it to the differences in their attitude in the beginning two sessions where they were asking "why am I doing this?" or "do I really need to learn this to get a job?" to their mid-semester attitude of "what else can I do to learn more about this subject?".

Furthermore, students were kept updated with news and events from the business press that were related to the course's content (e.g., Wall Street Journal, Business Week, Fortune Magazine) and were encouraged to subscribe to such sources of market, managerial and

technological news. Students were also encouraged to report to class (at the beginning 5-10 minutes of each meeting and on a volunteer basis) interesting news pertaining to information management or OB issues. The majority of students volunteered to do the mini presentations and in many cases the "news" helped many groups to form ideas about their term projects.

After the first two weeks the level of involvement increased dramatically along with the number of questions regarding "Do IS managers really do this?" and the frequency of calls, e-mail and visits to the instructor's office regarding group assignments and observation of real-world situations in organizations. In addition, group leaders (or spokespersons as they liked calling them) assumed much more responsibility in coordinating their groups and getting advice from one of the teaching assistants assigned to the course (these were highly regarded juniors and seniors that had taken the course the previous semester and were selected to help groups outside of the classroom). Teaching assistants were also very helpful in taking notes about the activity in class during experiential exercises and teaching. Typically, I would cover the OB and IM concepts or discuss case studies during the first meeting of the week, and then involve groups in experiential exercises to apply these concepts during the second meeting.

The syllabus for the course was laid out carefully in order to emphasize the philosophy of the course and the reasons for the "unconventional" style of teaching, course objectives, and the grading policy along with evaluation of every single assignment and activity. Thus, even though a few students first perceived the course as "we can do anything we want and still get a good grade", they quickly realized (especially after their first couple assignments, grades, and peer evaluations) that they needed a good balance of quality, content, and serious process involvement to do well in the course and that "simply showing up" was not enough.

In terms of topics covered in the course, there were three major areas: (i) *organizations as systems* and aspects of *functional & group coordination*, (ii) *behavioral aspects* of organizations (i.e., group, individual and intergroup activities), and (iii) *Information Management & IT-based competitiveness* issues (i.e., the networked firm, restructuring business, organizational change & development; what makes some organizations more successful than others and how information management can affect and sustain firm performance and competitiveness).

Each group was also responsible to put together a "contract with the instructor" where they would describe an empirical research they had decided for the class project (usually an interview with both an IS manager and an IS user), the organization involved in the project, and the learning goals of their research project. The instructor would then review the contract, decide on its evaluation based on the group's established set of goals, and finally both team and instructor would sign the contract and keep a copy.

The last two sessions during the course were devoted in professional group presentations of their research and interviews with IS managers. Question & Answer time was also allocated for each presentation where each group had a last chance to add or change the content of their papers before its final submission for a grade. Each group member received the same grade

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unless involvement in group activities and work during the semester was not equal and more than one students in a group reported it (i.e., they were given "group evaluation forms" where they had a chance to praise or blame group members for varying degrees of effort and contribution).

The Findings: Most Effective Teaching Strategies & Experiential Exercises

The following are observations regarding the most effective teaching techniques and exercises during the semester (see also Table 1):

(a) In general, Small-Group Behavior & Interactions:

- Interaction within and across groups forced students to be more responsible and consistent to their tasks as assigned by the group leader or decided by a majority vote. Also, it bonded students to each other and it promoted respect of each other's strengths and weaknesses.

- Students learnt about the usefulness of meeting agendas and how to evaluate their goals, deal with confrontation and conflict within groups, how to negotiate, and how to evaluate their peers. Certain experiential exercises were used to emphasize these aspects in an IBO or information management environment. For example, certain exercises exposed students to dealing with IT vendors and negotiating with them, evaluating different IT products and come to consensus with their group members on which ITs to purchase or make etc. (see Table 1).

- Students became more confident in themselves, presented material and cases in a very professional way, and in general argued convincingly about their opinion on IM issues. They also felt proud about their ability to interview and converse meaningfully with "IT experts" and IS managers, as well as their ability to anticipate successful or problematic environments in the organizations they visited.

- Overall, students learnt how to systematically observe, reason and predict, as well as to appreciate diversity within groups and accept differences in race, ethnicity, gender, age, culture, and work experience that might otherwise have hindered their judgment on managerial or technical situations.

(b) Specific Small-Group Activities:

- Short Case Studies: Analysis of cases took place in class or as take-home assignments. Students read material individually and met with group to agree on problem identification and propose alternative solutions and reasoning for them.

• In-class Analysis of an IBO: Students were given a real scenario/organization and were then asked to define the IBO's structural characteristics, its IT needs, its approach to IM, and IT's impact on the structure and behavior of the IBO (e.g., students were asked to analyze the University's registration system and processes and propose ways to reengineer it).

• Debates between Groups: Class was split in two or four groups with polarized views (given by the instructor) and team leaders facilitated the discussion and argued for each group (e.g., good items for debates are computer ethics & piracy, centralized vs. decentralized IS management, and make vs. buy decisions for IT).

• Designing IBOs: Groups were asked to brainstorm and identify an information-based organization (IBO), as well as assign roles to the group members, discuss and identify revenue sources, mission & goals of the IBO, reward system, long-term vision in regards to IM and change, etc. Good examples are the design of a newspaper or a news TV-program.

Table 1 demonstrates the various elements of intellectual development from these class activities. The following observations were made regarding the effectiveness of these exercises:

(1) students working in small groups assumed greater levels of responsibility and were more confident and their intrinsic motivation was much higher than that of students in other courses using conventional, instructor-directed teaching methods;

(2) students working in small groups were able to explore each other's knowledge and skills, thus allowing them to see themselves, their other group members, and their instructor as *learning resources* (Williams, 1982; Akin, 1991); also, various coalitions were developed among compatible group members and group performance was much higher than in the courses where limited group activity was allowed and thus students had very little chance of getting to know each other's strengths and weaknesses;

(3) contact with the instructor increased from the students in the class using groups and this was attributed to the building of trust between the students and the instructor based on their appreciation for their learning experience. For example, every time the students would apply a particular theory or concept using an experiential exercise they would want to continue research on the subject after the end of class presentations!; in other situations, students that were recently employed would call and volunteer to give a small presentation to the new IBO classes about the importance of the experiences and groupwork.

(4) smaller groups tended to have a "life after class" and formed more social ties than the larger groups; and,

(5) students in smaller groups and in general comparison with other classes where there was no group activity were much more innovative and excited about the IM field, as well as their research projects at the end of the semester. Finally, their projects were generally of higher quality and with more rigor.

Table 1: Small Group Activities and Academic Impact (in chronological sequence during the course)

OB-based Small Group Activities: Sample Experiential Exercises	Academic Impact: Learning, Achievement & Intellectual Development
• *Icebreaker: Sherlock Holmes investigates about the instructor* • *Critical Factors for Group Effectiveness: What should we call group your and what are your group's Goals?* [Groups are also provided with handouts to help them manage their time and goal seeking better: Xerox's video on "Mining Group Gold" follows the exercises]	• Familiarity with Group members • Establishment of group cohesiveness factors and group's "mission" • Identification of strengths and weaknesses and establishment of ability for observation, reasoning, creativity, and prediction • "Opening up" with the instructor early in the course and forming trusting relationship among members, and between members and the instructor; stereotypes about "what a professor does" are discussed and students become more comfortable with class discussion and communicating their ideas and questions
• *Personality & Learning Style Inventories: Yung's Types (Myers-Briggs), The Kolb Learning Style Inventory, A & B Types of Personality, Left-Right Brain Types*	• More detailed assessment of strengths and weaknesses; comparison with other group members or other class members • Students start realizing their differences and start thinking about assigning group responsibilities ("who would be the best to do this?")
• *Managerial Roles & Skills required in an information-based organization (IBO): Designing an IBO, Defining its resources requirements, and Thinking about its Interdependence and Coordinating Mechanisms*	• Leader (spokesperson) appointments in groups are evident by now • Leader's role and characteristics are likely to influence group's behavior: ranging from chaotic-but-democratic to structured-and-democratic to structured-and-autocratic (extreme task specialization); Examples of IBOs designed: School Newspaper, TV News Program
• *GroupThink: The Abilene Paradox*	• Negative group consequences: Video on NASA's Challenger disaster

Table 1 (continued): Small Group Activities and Academic Impact (in chronological sequence)

• *Game Theory: Prisoner's Dilemma*	• Groups or members have limited resources and need to collaborate
• *Process Reengineering Exercise: Identification of an IBO and thinking about the application of information technology (IT) to restructure it and improve its effectiveness [students select the IBO]* • *Creative Problem-Solving Exercises & Brainstorming* • *Socio-Technical Systems within IBOs* • *Adaptors versus Innovators*	• Problem-solving skills become handy and this is one more chance for students to do a self-evaluation of their creativity skills; students also gain confidence and learn about their ability to discover problems and pinpoint alternative solutions • Learning about the enabling role of IT for BPR, TQM • Consensus building; Listening skills; Appreciation of diversity in groups
• *The Extended Enterprise (IBO) or The Intergroup Competition-Collaboration: Partnerships with Suppliers, Customers, & Competitors* • *Conflict Resolution Style* • *Negotiations*	• Debates between groups enhance students' ability to argue based on facts and reasoning • Building of confidence and high attainment; getting to know the art of persuasion • Examples of Debates: IT Vendor-IBO, IS User-IS Manager, Microsoft-Novell

• *Leadership Exercises: Splitting the class into even number of groups and assigning them a task and a "technology" to complete it.* • *Vroom-Yeton Model*	• Students are able to make associations between leadership style (autocratic & task-oriented, aloof & chaotic, democratic & people-oriented), the situation (environment, task at hand, the technology provided to them), and their group's productivity • Students learn about the contingency approach via various examples and tasks
• *Power & Conflict*	• Leaders' realization of role dilemmas in crisis situations where personal interest comes first • Ethical conflicts associated with power
• *Organizational Change and resistance to Change* • *IT's impact on organizational structure* • *The art of interviewing IBO members: Information Managers and IS Users*	• Performance Appraisal Systems • Communication Skills: between group members and among groups to discuss "planned change" and come to consensus • Reward systems for IBO managers and linkages to Change • Examples of Exercises: Structural Change; Centralization vs. Decentralization issues and importance for Information Management; Mainframe vs. Client-Server Environments

(6) the "charged" atmosphere in each of the classes also provided me with immense gratification and the sense of reward, and increased my motivation to think of more innovative ways to make teaching information management relevant and "more applicable" to real-world situations and problems, thus increase students' interest and motivation to join our field.

Observed Stages of Student Involvement, Motivation, and Intellectual Development Using Small Groups:

Small-group culture forced students to assume greater responsibility and "not let down" the rest of the group. In-class activities and comparison to their "competing" groups also created an atmosphere of constant attainment and persistence to complete more difficult tasks. Criticisms and open evaluations of group work by the rest of the class also contributed to high levels of attainment and consequently high self-concept of ability among group members. Past research confirms these findings and has shown strong causality between future self-confidence and success of students and adults with high attainment at earlier years of their education (McMahan, 1973; Valle & Frieze, 1976; Nicholls, 1979). This perhaps means that positive experiences during undergraduate work will positively affect the students' future levels of professional attainment and success.

In summary, during the IBO course the various experiential exercises and group interaction aided in forming four distinct stages of student intellectual development (see Figure 1). These stages are described below and are consistent with past research on the subject of intellectual development and teaching effectiveness (Nicholls, 1979; Williams, 1982; Webb, 1982; Mallinger & Elden, 1987; Bowen & Jackson, 1986; Akin, 1991; Couger et al., 1993; Hersey & Blanchard, 1993):

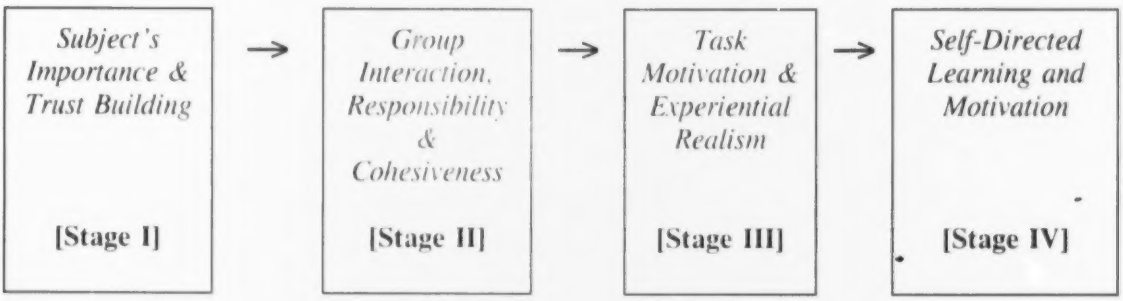
STAGE I. **Establishment of importance of subject and institution of trust between instructor and students:** students learn about the role of information in reducing uncertainty; the role of OB in better understanding and more accurately predicting managerial behavior; the definition of IBOS; the evolution of an information-based economy, and the role of information management; definitions and fundamentals about OB and IM.

STAGE II. **Establishment of group interaction, increased responsibility & cohesiveness**: groups act as organizations; groups are systems with common goals; member interaction increases responsibility; it also enhances realization that members have unique characteristics (i.e., diversity issues), strengths and weaknesses which will help them carry out complex tasks together by assigning appropriate responsibilities to the right members and collaborating in problem-solving situations.

STAGE III. **Establishment of task motivation via "applicability" and experiential realism of IT management and OB:** involvement in experiential exercises; realization that theory taught by the instructor is applicable in real-life situations (e.g., conflict management, negotiations, power and leadership attributes); generation of self-confidence within the group and in class in general

STAGE IV. **Self-directed learning & motivation:** students are starting to act on their own, finding interesting subjects related to IM and OB and contacting interviews of managers and employees of local companies, observe managerial behavior and report results or dysfunctional organizations and in general, are willing to do extra research to learn about issues beyond the ones specified by the instructor, generate questions about managerial behavior and IS management issues, associate theory with practice, and discover their own creative abilities to solve complex problems and management crises

Figure 1: Stages for Students' Intellectual Development (IBO Course)



← Highly Structured Climate	More Unstructured Climate →
← Teacher-Directed Learning	Self-Directed Learning →
← Extrinsic Motivation	Intrinsic Motivation →
← Assigned Reading Material	Volunteer basis for Readings →

Discussion & Implications

Teaching introductory information systems or information management courses can be very challenging for the instructor and might result in students remaining uninterested in the subject area, a limited intellectual development, and in many occasions in poor evaluations of the instructor's teaching ability. However, the adoption of certain group-based and self-directed learning techniques seems to be more appropriate for teaching IM and it can enhance the students' motivation, creativity and innovation, their information management skills and their level of attainment and overall performance.

In this paper I described my recent experience in teaching two large sections of an introductory course in IM and OB principles at a major private university which is considered one of the leaders in its field. The course was part of the core curriculum of the B.Sc. degree in Information Management & Technology. In summary, I observed that collaborative environments in the classroom induce much higher degrees of learning than environments based on the traditional teacher-dependent or lecture-based models. Furthermore, groupwork and role taking can both increase motivation and improve learning, enhance the intellectual development and the confidence of the involved students, as well as increase the excitement and rejuvenation of the instructor!

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